

Name: _____

Date: _____

Midterm Review Sheet (2018)

1. Which of the following is the value of the expression $\frac{x^2+4}{2}$ when $x=-2$?

- (1) 0
- (2) 2
- (3) $-\frac{1}{2}$
- (4) 4

2. If the expression $4x+3$ is equal to 1 for some value of x , what is the expression $4x+8$ equal to for the same value of x ?

- (1) 6
- (2) 11
- (3) 8
- (4) 7

$(x-10)(x+2)$

3. The product $(x-10)(x+2)$ is equivalent to

- (1) $x^2 - 20$
- (2) $x^2 - 8x + 20$
- (3) $2x - 8$
- (4) $x^2 - 8x - 20$ ✓

$x^2 + 2x - 10x - 20$
 $x^2 - 8x - 20$

4. Find the product of $(3x+5)$ with $(2x-3)$ in simplest form.

$(3x+5)(2x-3)$
 $6x^2 - 9x + 10x - 15$
 $6x^2 + x - 15$

5. Which of the following equations illustrates the associative property of addition?

- (1) $(3+7)+(2+8)=(7+3)+(8+2)$
- (2) $(5)(3 \cdot 4)=(5 \cdot 3)(4)$
- (3) $(4+5)+5=4+10$
- (4) $2(5+4)=10+8$

6.

Justify each of the following manipulations to combine two expressions by filling in the blanks with the associative property, the commutative property, or the distributive property.

$$\begin{aligned}
 5(2x+1)+2(3x+4) &= (10x+5)+2(3x+4) \\
 &= (10x+5)+(6x+8) \\
 &= 10x+(5+6x)+8 \\
 &= 10x+(6x+5)+8 \\
 &= (10x+6x)+(5+8) \\
 &= (10+6)x+(5+8) \\
 &= 16x+13
 \end{aligned}$$

Distributive

Distributive

Associative

Commutative

Associative

Distributive

7.

The sum of three consecutive integers is 12 more than twice the largest integer. Which of the following equations could be used to find the three integers?

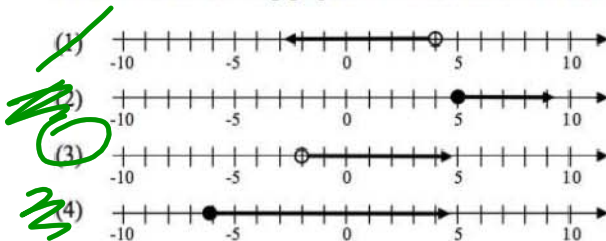
- (1) $n+n+1+n+2=2n+2+12$
- (2) $n+n+2+n+4=2(n+4)+12$
- (3) $n+n+1+n+3=2n+3+12$
- (4) $n+n+1+n+2=2(n+2)+12$

8.

If the inequality $-8 < x \leq 10$ was placed in interval notation it would be represented by

$$(-8, 10]$$

9. Which of the following graphs shows the solution set to $-2x+8 < 12$?



$$\begin{aligned}
 -2x+8 &< 12 \\
 -8 &\quad -8 \\
 \hline
 -2x &< 4 \\
 -2 &\quad -2 \\
 \hline
 x &> -2
 \end{aligned}$$

10. The area of a triangle is given by the formula $A = \frac{1}{2}bh$. Solve this equation for the height, h , in terms of the base, b , and area, A .

$$2 \cdot A = \frac{1}{2}bh \cdot 2$$

$$\frac{2A}{b} = \frac{bh}{b}$$

$$h = \frac{2A}{b}$$

x=

11. Solve the following equation for x . Show the manipulations that lead to your final answer.

$(x+1) - 2x - 1 = (x+15) + (x+16)$

$$6x + 6 - 2x - 1 = x + 15 + x + 16$$

$$4x + 5 = 2x + 31$$

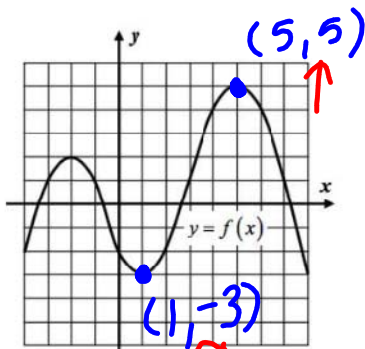
$$\begin{array}{r} 4x + 5 = 2x + 31 \\ -2x \quad -2x \\ \hline 2x + 5 = 31 \end{array} \rightarrow \frac{2x}{2} = \frac{26}{2}$$

$$x = 13$$

12. A function is initially defined by the set of coordinate pairs $\{(-3, 5), (1, 5), (4, 13)\}$. Which coordinate pair below, if added to this set, prevents the set from representing a function?

- (1) (2, 5) (3) (-1, 8)
 (2) (5, 0) (4) (1, -4)

13. What is the domain and range of the following function?



Domain \rightarrow x-value
 $[-4, 8]$

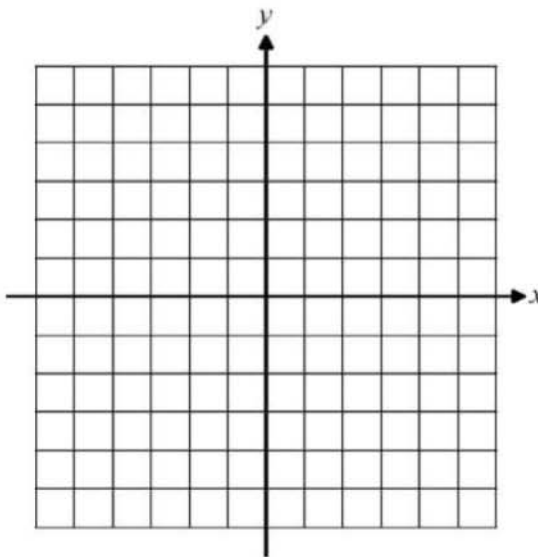
Range = $[-3, 5]$



14.

Graph the piecewise function shown below on the axes provided. Show a table of values.

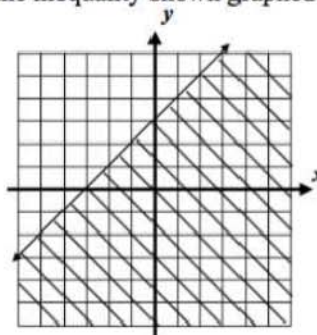
$$f(x) = \begin{cases} -2x - 4 & -4 \leq x < -1 \\ x - 1 & -1 \leq x \leq 5 \end{cases}$$



15.

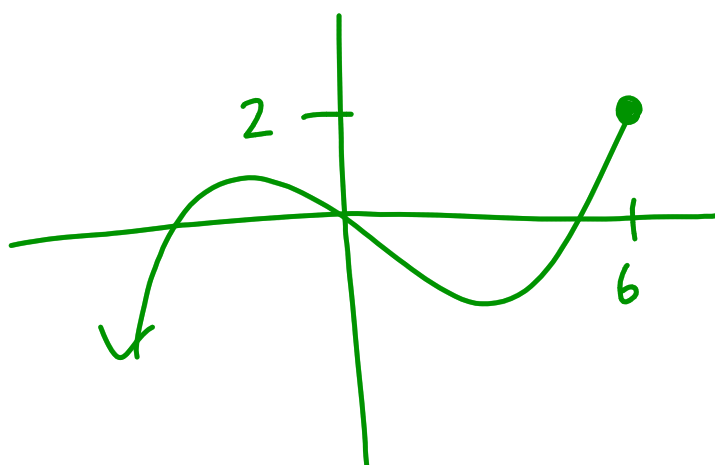
Which of the following is the equation of the inequality shown graphed below?

- (1) $y < x + 3$
- (2) $y \leq x + 3$
- (3) $y > x + 3$
- (4) $y \geq x + 3$



16.

If graphed in the coordinate plane, would the line $y = 5x - 2$ pass through the point $(4, 15)$? Explain how you arrived at your answer.



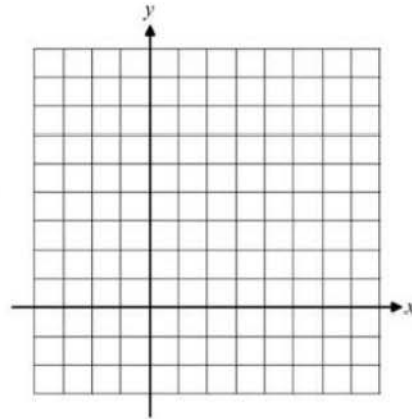
$$D: (-\infty, 6]$$

$$R: (-\infty, 2]$$

17.

Graph the line $3y - 2x = 3$ on the axes provided.

At what value of x does the line you graphed intersect the line $y = 5$. Show how you determined your answer.



18. Given the following expressions:

I. $-\frac{5}{8} + \frac{3}{5}$ III. $(\sqrt{5}) \cdot (\sqrt{5})$

II. $\frac{1}{2} + \sqrt{2}$ IV. $3 \cdot (\sqrt{49})$

Which expression(s) result in an irrational number?

(1) II, only

(3) I, III, IV

(2) III, only

(4) II, III, IV

19. When $(2x - 3)^2$ is subtracted from $5x^2$, the result is

(1) $x^2 - 12x - 9$

(3) $x^2 + 12x - 9$

(2) $x^2 - 12x + 9$

(4) $x^2 + 12x + 9$

